Cummins Inc.

Marine Engine General Data Sheet

Engine Model: KTA50-M2

Data Sheet: DS-4998
Date: 13-Dec-13

GENERAL ENGINE DATA

	Metric [U.S. Customary]	
Type		4 Cycle, 60° Vee, 16 Cylinders
Cylinders		16
Bore	mm [in]	159 [6.25]
Stroke	mm [in]	159 [6.25]
Displacement	liter [in^3]	50 [3,068]

ENGINE MOUNTING & ACCESSORY DRIVES

Max. Allowable Bending Moment at Rear Face of Block	N·m [ft·lb]	6101 [4500]
Max. Allowable Axial Thrust Load on Crankshaft	N [lb]	3336 [750]
Min. Axial Clearance at Front Face of Crankshaft for Thermal Expansion	mm [in]	3.44 [0.135]
Crankshaft Radial Load Limit	MAB 0.01.09-12/02/2005	
Max. Allowable Radial Load on Front of Crankshaft		
At All Angles	N [lb]	2077 [467]
Max. Allowable Radial Load on Rear of Crankshaft		
At All Angles	N [lb]	2019 [454]
Maximum Operating Angles (see MAB No. 0.16.00-01/18/2007 for definitions and options to gain greater capability)		
Continuous Pitch Angle		
Engine Front Up From Horizontal	Deg.	10°
Engine Front Down From Horizontal	Deg.	5°
Continuous Roll Angle		
"Right" from vertical viewed from flywheel end of engine	Deg.	20°
"Left" from vertical viewed from flywheel end of engine	Deg.	20°
Intermittent Pitch Angle (intermittent operation less than 1 minute)		
Engine Front Up From Horizontal	Deg.	30°
Engine Front Down From Horizontal	Deg.	30°
Intermittent Roll Angle (intermittent operation less than 1 minute)		
"Right" from vertical viewed from flywheel end of engine	Deg.	45°
"Left" from vertical viewed from flywheel end of engine	Deg.	45°

FUEL SYSTEM

Maximum Allowable Restriction to Fuel Pump		
Clean Filter	kPa [in Hg]	14 [4.0]
Dirty Filter	kPa [in Hg]	27 [8.0]
Maximum Allowable Return Line Pressure	kPa [in Hg]	22 [6.5]
Maximum Static Pressure at Fuel Pump	kPa [in Hg]	20 [6.0]
Maximum Height of Fuel In Tank Above Fuel Pump	m [ft]	2.47 [8.1]

EXHAUST SYSTEM

Maximum Allowable Back Pressure	kPa [in Hg]	10 [3]
Maximum Bending Moment at Turbine Outlet Mounting Flange	N·m [ft·lb]	21.0 [15.5]
Maximum Incremental Direct Load at Turbine Outlet Mounting Flange	kg [lb]	9.1 [20.0]

AIR INDUCTION SYSTEM

Max. Allowable Intake Restriction - Turbocharged		
Clean Filter	kPa [in H_2O]	4 [15]
Dirty Filter	kPa [in H_2O]	6 [25]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient	°C [°F]	17 [30]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

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LUBRICATION SYSTEM

Oil Consumption Rate (Volume Percent of Fuel Consumption Rate)	%	0.00
Oil Pressure at Normal Operating Temperature		
Idle Speed - Minimum in Main Oil Gallery	kPa [psi]	138 [20]
Rated Speed - Measured in Main Oil Gallery (Low)	kPa [psi]	310 [45]
Rated Speed - Measured in Main Oil Gallery (High)	kPa [psi]	483 [70]
Max. Allowable Oil Temperature (Sump)	°C [°F]	121 [250]
Oil Pan Capacity (Shallow) OP		
Low	liter [gal]	121.1 [32.0]
High	liter [gal]	151.4 [40.0]
Total System Capacity (Max. Sump + Filter(s))	liter [gal]	164.7 [43.5]
Oil Pan Capacity (Deep) OP		
Low	liter [gal]	170.3 [45.0]
High	liter [gal]	246.1 [65.0]
Total System Capacity (Max. Sump + Filter(s))	liter [gal]	259.3 [68.5]
By-Pass Oil Filter Capacity	liter [gal]	4.5 [1.2]

COOLING SYSTEM

Coolant Capacity		
Engine Only	liter [gal]	196.8 [52.0]
Engine Including Heat Exchanger and Integral Expansion Tank	liter [gal]	227.1 [60.0]
Min. Coolant Makeup Capacity	liter [gal]	34.8 [9.2]
Max. Pressure Drop Across Any External Cooling System Circuit	kPa [psi]	34.5 [5.0]
Max. Allowable Block Coolant System Pressure	kPa [psi]	103.4 [15.0]
Max. Coolant Temperature at Engine Outlet	°C [°F]	96 [205.0]
Min. Block Coolant Temperature (Warm Engine)	°C [°F]	71 [160.0]
Min. Allowable Coolant Expansion Space	% of System Capacity	5%
Maximum Sea Water Pressure	kPa [psi]	241.3 [35.0]
Sea Water Pump Specifications	Refer to MAB 0.08.17 - 07/16/2001	

ELECTRICAL AND STARTER SYSTEM

Electrical		12V	24V
Min. Recommended Battery Capacity			
Cold Cranking Amperes Rating (CCA)		0	1800
Marine Cranking Amperes Rating (MCA)		0	2250
Reserve Capacity (Discharging 25 Amps @ 80°F)	minutes	320	320
Min. Allowable System Voltage (@ Battery While Running)	Volts	12.0	21.0
Min. Allowable System Voltage (@ Battery While Cranking)	Volts	0	18
Max. Allowable System Voltage (@ Battery While Running)	Volts	15.5	31.0
Max. Allowable Voltage Drop of Starting Circuit (While Cranking)	Volts	0.0	2.6
Min. Engine Cranking Torque	ft·lb	0	1300
Min. Break-away Engine Cranking Torque	ft·lb	0	1000
Min. Engine Cranking Speed	rpm	150	150

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COLUMBUS, INDIANA

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